

**For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer and two for showing your work. For some problems, you may just need to write out how you know you have the correct answer.**

Solve problems 1-6 using a method of your choice. If choose to graph any, use a separate piece of graph paper.

1. 
$$\begin{cases} y = x - 1 \\ x + y = 5 \end{cases}$$

2. 
$$\begin{cases} x + y = 4 \\ y = 2x - 8 \end{cases}$$

3. 
$$\begin{cases} x + 1 = y \\ y = 2x \end{cases}$$

4. 
$$\begin{cases} -2y + 12 = 7x \\ 5x + 3y = 18 \end{cases}$$

5. 
$$\begin{cases} 3x - y = -10 \\ -5x - y = 14 \end{cases}$$

6. 
$$\begin{cases} 3x - y = 17 \\ y + 2x = 8 \end{cases}$$

Use the following information for questions 7- 9: Matt Mitarnowski and Fuzzy Jeff are rock climbing on the same hill. Matt is at a height of 200 ft and begins descending the hill at a rate of 12 ft per minute. Jeff is at a height of 120 ft and begins ascending at a rate of 4 ft per minute.

7. Let  $H$  be the height above ground level for each climber and  $m$  be the number of minutes each is climbing. Write a system of equations to represent the height for each climber after  $m$  minutes.

8. After how many minutes will the two climbers cross each other?

9. After how many total minutes of climbing will Jeff reach the 200 ft level?

**Open-Ended Question: Write your answer on separate sheet of paper. Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!**

A new company manufactures toys at a cost of \$2.50 per item. In addition, their set-up costs were \$1,925. They can sell each toy they produce at \$8.00.

A. If  $y$  is the total cost of production for  $x$  items, write an equation to represent their costs of production.

B. If the equation were graphed, what would the slope of the line represent?

C. If  $y$  is their income from sales and  $x$  is the number of items they sell, write an equation to represent their outcome.